UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,113	12/09/2003	Mitica Manu	003797.00735	5443

28319 7590 01/22/2008

BANNER & WITCOFF, LTD.
ATTORNEYS FOR CLIENT NOS. 003797 & 013797
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER	
FITZPATRICK, ATIBA O	
ART UNIT	**PAPER NUMBER**
4192	

MAIL DATE	DELIVERY MODE
01/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/730,113	MANU ET AL.	
	Examiner	**Art Unit**	
	Atiba O. Fitzpatrick	4192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/09/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *12/09/2003*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 4 objected to because of the following informalities: The preamble seems to be missing the word “method” after “The method of claim 3, wherein said”. As it is written, it does not make sense. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 3, 4, 5, 13, 16, 17, 18, 19, 20, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5768478 (Batten).

4. As per claim 1, Batten teaches a method for evaluating a computer learning signal processing engine, comprising:

identifying a first group of signal sets (Batten: col 5, line 63: “subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)”), each signal set of the first group having an associated range of values for a variable corresponding to the first group (Batten: col

1, line 55: “two-state signal”), the variable being one of a plurality of variables having values characterizing multiple signals to be processed (Batten: col 1, line 16: "artificial neuron comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n"); calculating an accuracy score for each signal set of the first group using the signal processing engine to be evaluated (Batten: col 1, line 51: “backpropagation algorithm for training”); applying weight factors to the accuracy scores for the first group signal sets, each weight factor representing a relative importance of one of the associated ranges of values for the first variable (Batten: Fig. 8: element 3); summing weighted accuracy scores for the first group of signal sets to yield a fast summed accuracy score (Batten: Fig. 8: element 4); identifying additional groups of signal sets, each group having a corresponding variable of the plurality of variables, each signal set of a group having an associated range of values for the corresponding variable (Batten: col 11, line 17: “After suitable conditions have been set into all of the latches by a start-up or initialization routine, the network input at time k (with k=rm+t), is the input corresponding to T.sub.1. Since the output at time k corresponds to T.sub.1, information fed back through signal paths 45 and 46 is combined with input data in Layer 0. The following clock cycles cause this data to be passed through the adder network, until, after m cycles, all additions have been done and the saturated sum appears at the output of latch 44”); calculating accuracy scores for each signal set of each additional group using the signal processing engine to be evaluated (Batten Fig. 12A: element 26); applying weight factors to the accuracy scores for the signal sets of the additional groups, the weight factors within each of the additional groups representing a relative importance of

associated ranges of values for the variable corresponding to the group (Batten Fig. 12A: element 47); summing the weighted accuracy scores within each of the additional groups to yield additional summed accuracy scores (Batten Fig. 12A: element 42); and further combining the summed accuracy scores (Batten Fig. 12A: element 43).

5. As per claim 2, Batten teaches the method of claim 1, wherein at least some of the associated ranges of values are single values (Batten: col 5, line 63: “subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)”).

6. As per claim 3, Batten teaches the method of claim 1, wherein said further combining the summed accuracy scores comprises: applying weight factors to a plurality of the summed accuracy scores, each of the weight factors applied to the plurality of summed accuracy scores representing a relative importance of the variable corresponding to the group from which a different one of the plurality of summed accuracy scores was derived (Batten Fig. 12A: element 47), and summing the plurality of weighted summed accuracy scores to yield a subsequent sum (Batten Fig. 12A: element 42 (layer 1)).

7. As per claim 4, Batten teaches the method of claim 3, wherein said further combining the summed accuracy scores comprises:
applying additional weight factors to the subsequent sum and to at least one of the summed accuracy scores (Batten Fig. 12A: element 47), the additional weight factors

representing the relative importance of at least one variable corresponding to groups from which the subsequent sum was derived and of the variable corresponding to the group from which the at least one summed accuracy score was derived (Batten: col 5, line 64: "quantity w.sub.ji is the product of x.sub.j and w.sub.j, for x.sub.j in state i (i=0 or 1)"; Fig. 18: “W”), and summing the additionally weighted subsequent sum and the additionally weighted at least one summed accuracy score (Batten Fig. 12A: element 42 (layer 1)).

8. As per 5, The method of claim 3, further comprising:

identifying an additional variable having values characterizing multiple signals to be processed (Batten: col 1, line 16: "artificial neuron comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n": "n” is arbitrary); identifying another group of signal sets (Batten: col 5, line 63: “subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)”), each signal set of the group having an associated range of values for the additional variable (Batten: col 1, line 55: “two-state signal”); calculating an accuracy score for each signal set of the additional variable group using the signal processing engine to be evaluated (Batten: col 1, line 51: “backpropagation algorithm for training”); applying weight factors to the accuracy scores for the additional group signal sets, each weight factor representing a relative importance of one of the associated ranges of values for the additional variable (Batten: Fig. 8: element 3); summing weighted accuracy scores for additional group signal sets to yield an additional summed accuracy score (Batten: Fig. 8: element 4);

applying weight factors to the plurality of the summed accuracy scores and to the additional summed accuracy score, each of the weight factors representing a relative importance of the variable corresponding to the group from which a different one of the plurality of summed accuracy scores was derived or of the additional variable (Batten: Fig. 18: “W”), and summing the plurality of weighted summed accuracy scores and the weighted additional accuracy score (Batten: Fig. 18: 91).

9. As per claim 13, Batten teaches the method of claim 1, further comprising applying a transforming function to a sum (Batten: col 1, line 23: "an element which transforms the intermediate signal u (usually by a nonlinear function F) to produce the output signal y").

10. As per claim 16, Batten teaches a computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising:

identifying a first group of signal sets (Batten: col 5, line 63: “subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)”), each signal set of the first group having an associated range of values for a variable corresponding to the first group (Batten: col 1, line 55: “two-state signal”), the variable being one of a plurality of variables having values characterizing multiple signals to be processed (Batten: col 1, line 16: "artificial neuron comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n");

calculating an accuracy score for each signal set of the first group using the signal

processing engine to be evaluated (Batten: col 1, line 51: “backpropagation algorithm for training”); applying weight factors to the accuracy scores for the first group signal sets, each weight factor representing a relative importance of one of the associated ranges of values for the first variable (Batten: Fig. 8: element 3); summing weighted accuracy scores for the first group of signal sets to yield a fast summed accuracy score (Batten: Fig. 8: element 4); identifying additional groups of signal sets, each group having a corresponding variable of the plurality of variables, each signal set of a group having an associated range of values for the corresponding variable (Batten: col 11, line 17: “After suitable conditions have been set into all of the latches by a start-up or initialization routine, the network input at time k (with k=rm+t), is the input corresponding to T.sub.1. Since the output at time k corresponds to T.sub.1, information fed back through signal paths 45 and 46 is combined with input data in Layer 0. The following clock cycles cause this data to be passed through the adder network, until, after m cycles, all additions have been done and the saturated sum appears at the output of latch 44”); calculating accuracy scores for each signal set of each additional group using the signal processing engine to be evaluated (Batten Fig. 12A: element 26); applying weight factors to the accuracy scores for the signal sets of the additional groups, the weight factors within each of the additional groups representing a relative importance of associated ranges of values for the variable corresponding to the group (Batten Fig. 12A: element 47); summing the weighted accuracy scores within each of the additional groups to yield additional summed accuracy scores (Batten Fig. 12A: element 42); and

further combining the summed accuracy scores (Batten Fig. 12A: element 43).

11. As per claim 17, Batten teaches the computer-readable medium of claim 16, wherein at least some of the associated ranges of values are single values (Batten: col 5, line 63: “subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)”).

12. As per claim 18, Batten teaches the computer-readable medium of claim 16, wherein said further combining the summed accuracy scores comprises: applying weight factors to a plurality of the summed accuracy scores, each of the weight factors applied to the plurality of summed accuracy scores representing a relative importance of the variable corresponding to the group from which a different one of the plurality of summed accuracy scores was derived (Batten Fig. 12A: element 47), and summing the plurality of weighted summed accuracy scores to yield a subsequent sum (Batten Fig. 12A: element 42 (layer 1)).

13. As per claim 19, Batten teaches the computer-readable medium of claim 18, wherein said further combining the summed accuracy scores comprises:
applying additional weight factors to the subsequent sum and to at least one of the summed accuracy scores (Batten Fig. 12A: element 47), the additional weight factors representing the relative importance of at least one variable corresponding to groups from which the subsequent sum was derived and of the variable corresponding to the group from which the at least one summed accuracy score was derived (Batten: col 5,

line 64: "quantity w.sub.ji is the product of x.sub.j and w.sub.j, for x.sub.j in state i (i=0 or 1)"; Fig. 18: "W"), and summing the additionally weighted subsequent sum and the additionally weighted at least one summed accuracy score (Batten Fig. 12A: element 42 (layer 1)).

14. As per 20, The computer-readable medium of claim 18, further comprising: identifying an additional variable having values characterizing multiple signals to be processed (Batten: col 1, line 16: "artificial neuron comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n": "n" is arbitrary); identifying another group of signal sets (Batten: col 5, line 63: "subscript digits 0 and 1 are used to identify the states…state i (i=0 or 1)"), each signal set of the group having an associated range of values for the additional variable (Batten: col 1, line 55: "two-state signal"); calculating an accuracy score for each signal set of the additional variable group using the signal processing engine to be evaluated (Batten: col 1, line 51: "backpropagation algorithm for training"); applying weight factors to the accuracy scores for the additional group signal sets, each weight factor representing a relative importance of one of the associated ranges of values for the additional variable (Batten: Fig. 8: element 3); summing weighted accuracy scores for additional group signal sets to yield an additional summed accuracy score (Batten: Fig. 8: element 4);
applying weight factors to the plurality of the summed accuracy scores and to the additional summed accuracy score, each of the weight factors representing a relative importance of the variable corresponding to the group from which a different one of the

plurality of summed accuracy scores was derived or of the additional variable (Batten: Fig. 18: “W”), and summing the plurality of weighted summed accuracy scores and the weighted additional accuracy score (Batten: Fig. 18: 91).

15. As per claim 28, Batten teaches the computer-readable medium of claim 16, further comprising applying a transforming function to a sum (Batten: col 1, line 23: "an element which transforms the intermediate signal u (usually by a nonlinear function F) to produce the output signal y").

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 1 above, and further in view of USPN 5097141 (Thiesson)

18. As per claim 6, Batten teaches the method of claim 1, further comprising selecting a variable of the plurality of variables (Batten: col 1, line 16: "artificial neuron

comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n"); calculating an accuracy score for signal sets in groups of signal sets corresponding to the variables (Batten: Fig. 8: element 4); applying weights to the accuracy scores for the signal sets in each variable group (Batten Fig. 12A: element 47) and summing the weighted scores within each of said groups to yield variable accuracy scores (Batten Fig. 12A: element 42 (layer 1)); and applying weights to the variable accuracy scores (Batten: Fig. 18: “W”) and summing the weighted variable accuracy scores (Batten: Fig. 18: 91).

19. Batten does not teach selecting sub-variables, each sub-variable having a range of values for a value of the selected variable; each of the signal sets within a group corresponding to a range of values for the corresponding sub-variable.

20. Thiesson teaches selecting sub-variables, each sub-variable having a range of values for a value of the selected variable (Thiesson: col 8, line 9: "The user-specific features 506 are comprised of sub-features, F.sub.pl F.sub.pn, 508 512. Formally, the full feature set F=F.sub.g.orgate.F.sub.p1.orgate.F.sub.p2.orgate. . . . .orgate. F.sub.pn, where F.sub.g are the generic features and F.sub.pi, i=1, . . . , n are subsets of the user-specific features."); each of the signal sets within a group corresponding to a range of values for the corresponding sub-variable (Thiesson: col 9, line 24: "group of characters ...Thus, any row with a number "1" indicates it has a like sub-feature").

21. Thiesson provides the motivation for using sub-variables on col 8, line 15: "generic classifier for the shape sub-feature can easily discern between an "A" and a "B"".

22. The rationale to combine these references is that Batten teaches all limitations of claim when considering variables instead of sub-variables. It would have been obvious for one skilled in the art at the time of the invention to substitute sub-variables for variables.

23. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Thiesson into Batten since Batten suggests a pattern recognitions routine with a plurality of variables in general and Thiesson suggests the beneficial use of sub-variables in the analogous art of handwriting recognition.

24. As per claim 21, Batten teaches the computer-readable medium of claim 16, further comprising selecting a variable of the plurality of variables (Batten: col 1, line 16: "artificial neuron comprises a number of input signal paths, x.sub.0, x.sub.1, . . . x.sub.n"); calculating an accuracy score for signal sets in groups of signal sets corresponding to the variables (Batten: Fig. 8: element 4); applying weights to the accuracy scores for the signal sets in each variable group (Batten Fig. 12A: element 47) and summing the weighted scores within each of said groups to yield variable accuracy

scores (Batten Fig. 12A: element 42 (layer 1)); and applying weights to the variable accuracy scores (Batten: Fig. 18: “W”) and summing the weighted variable accuracy scores (Batten: Fig. 18: 91).

25. Batten does not teach selecting sub-variables, each sub-variable having a range of values for a value of the selected variable; each of the signal sets within a group corresponding to a range of values for the corresponding sub-variable.

26. Thiesson teaches selecting sub-variables, each sub-variable having a range of values for a value of the selected variable (Thiesson: col 8, line 9: "The user-specific features 506 are comprised of sub-features, F.sub.pl F.sub.pn, 508 512. Formally, the full feature set F=F.sub.g.orgate.F.sub.p1.orgate.F.sub.p2.orgate. . . . .orgate. F.sub.pn, where F.sub.g are the generic features and F.sub.pi, i=1, . . . , n are subsets of the user-specific features."); each of the signal sets within a group corresponding to a range of values for the corresponding sub-variable (Thiesson: col 9, line 24: "group of characters ...Thus, any row with a number "1" indicates it has a like sub-feature").

27. Claims 7, 8, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 1 above, and further in view of USPN 7136710 (Hoffberg).

28. As per claim 7, Batten teaches the method of claim 1. Batten does not teach at least one variable is a source variable having values characterizing a source of a signal to be processed, at least one variable is a context variable having values characterizing the context of a signal to be processed, and at least one variable is a physical variable having values characterizing physical attributes of a signal to be processed.

29. Hoffberg teaches at least one variable is a source variable having values characterizing a source of a signal to be processed (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."), at least one variable is a context variable having values characterizing the context of a signal to be processed (Hoffberg: col 32, line 45: "context refers to information relating to the environment of use, e.g., the variable"), and at least one variable is a physical variable having values characterizing physical attributes of a signal to be processed (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension").

30. Hoffberg provides the motivation for using these particular variables on col 1– line 23: “The present invention provides an enhanced interface for facilitating human input of a desired information and for modifying information previously entered information”.

31. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Hoffberg into Batten since Batten suggests a multivariate pattern recognition system in general and Hoffberg suggests the beneficial use of a variables pertaining to context, source, and physical attributes in the analogous art of pattern recognition.

32. As per claim 8, Hoffberg teaches the method of claim 7, wherein at least one variable has values characterizing a user scenario in which a signal was generated (Hoffberg: col 66, line 58: "It should be noted that the present system preferably detects an identity of a user, and therefore differentiates between different users by an explicit or implicit identification system. Therefore, the system may accumulate information regarding users without confusion or intermingling"), the user scenario values including at least one of a software application and an operation performed within a software application (Hoffberg: col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”).

33. As per claim 22, Batten teaches the computer-readable medium of claim 16. Batten does not teach

at least one variable is a source variable having values characterizing a source of a signal to be processed, at least one variable is a context variable having values characterizing the context of a signal to be processed, and at least one variable is a physical variable having values characterizing physical attributes of a signal to be processed.

34. Hoffberg teaches at least one variable is a source variable having values characterizing a source of a signal to be processed (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."), at least one variable is a context variable having values characterizing the context of a signal to be processed (Hoffberg: col 32, line 45: "context refers to information relating to the environment of use, e.g., the variable"), and at least one variable is a physical variable having values characterizing physical attributes of a signal to be processed (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension").

35. As per claim 23, Hoffberg teaches the computer-readable medium of claim 22, wherein at least one variable has values characterizing a user scenario in which a signal was generated (Hoffberg: col 66, line 58: "It should be noted that the present system preferably detects an identity of a user, and therefore differentiates between different users by an explicit or implicit identification system. Therefore, the system may accumulate information regarding users without confusion or intermingling"), the user scenario values including at least one of a software application and an operation performed within a software application (Hoffberg: col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”).

36. Claims 9, 10, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 8 above, and further in view of 7136710 (Hoffberg) and USPN 7184591 (Thiesson).

37. As per claim 9, Hoffberg teaches the method of claim 8, wherein:
the signal processing engine to be evaluated comprises recognition software (Hoffberg: col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”), values of the source variable comprise demographic data regarding users creating samples (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), values of the context variable comprise data regarding the context of samples (Hoffberg: col 32, line 45: "context refers to information relating to the environment of use, e.g., the

variable"), and values of the physical variable (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension") comprise at least one of data regarding the scaling (Hoffberg: col 47, line 60: “group consisting of a … predetermined scaling”) of a sample, data regarding the relative angle (Hoffberg: col 47, line 60: “group consisting of a predetermined rotation”) of components of a sample and data regarding the spacing between components of a sample (Hoffberg: col 107, line 64: “In a preferred embodiment, a model contained in a database includes a three or more dimensional representation of an object. These models include information processed by a fractal-based method to encode repetitive, transformed patterns in a plane, space, time, etc”).Hoffberg does not teach the signals to be processed comprise handwriting samples.

38. Thiesson teaches the signal processing engine to be evaluated comprises handwriting recognition software (Thiesson: col 4, line 46: “The present invention also greatly enhances portable software products”), the signals to be processed comprise handwriting samples (Thiesson: abstract: “The present invention utilizes generic and user-specific features of handwriting samples to provide adaptive handwriting recognition”), values of the physical variable comprise at least one of data regarding the scaling of a handwriting sample (Thiesson: Fig 6. 606-608).

39. Thiesson provides the motivation for performing handwriting recognition on col 1 – line 39: "Unfortunately, not everyone who wanted to utilize a computer knew how to type. This limited the number of computer users who could adequately utilize the computing technology. One solution was to introduce a graphical user interface that allowed a user to select pictures from a computing monitor to make the computer do a task ... Although, these types of devices made employing computing technology easier, it still did not address mankind's age old method of communicating--handwriting".

40. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Thiesson into Batten since Batten suggests a pattern recognitions routine with a plurality of variables in general and Thiesson suggests the beneficial use of sub-variables in the analogous art of handwriting recognition.

41. As per claim 10, Batten teaches at least the summed accuracy scores for signal set, signal set and signal set groups of signals having a common variable value are weighted and summed to yield context accuracy scores (Batten Fig. 12A: element 47), accuracy scores are weighted and summed to yield a combined accuracy score, the combined accuracy score and at least one other summed accuracy score are weighted and summed to yield a accuracy score (Batten Fig. 12A: element 42), and

at least the accuracy score and a summed accuracy score for a group corresponding to the variable are weighted and summed to yield an overall accuracy score (Batten Fig. 12A: element 43).

42. Batten does not teach the method of claim 9, wherein: the groups of signal sets comprise: groups of demographic signal sets, each demographic signal set in a group having an associated range of values for the source variable and the same value for the context variable, groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a handwriting sample and the same value for the context variable, and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a handwriting sample and the same value for the context variable.

43. Hoffberg teaches the method of claim 9, wherein:

the groups of signal sets comprise: groups of demographic signal sets (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), each demographic signal set in a group having an associated range of values for the source variable (Hoffberg: col 36, line 57: “ demographic profiles may be employed, rather than individual preferences ... the source material has little variety, or is not the subject of strong preferences, the predictive power of the device as to a desired selection is limited”) and the same value for the context variable (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary

information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."; col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"), groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 60: "group consisting of a ... predetermined scaling"), and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 59: "group consisting of a predetermined rotation"),

44. Hoffberg provides the motivation for using demographic signal sets on col 36 – line 50: “Thus, instead of a best match to a single preference profile for a single user, a group system provides a most acceptable match for the group. It is noted that this method is preferably used in groups of limited size”. Hoffberg provides the motivation for context signal sets on col 28– line 17: “One factor limiting productivity of computer operators is the time necessary to communicate a desired action through an interface to

a computerized device. The present technologies seek to reduce this limitation and make use of surplus processing capacity of the computer to predict a most likely input from the operator and present this as an easily available option". Hoffberg provides the motivation for using scaling and angle signals on col 2 – line 3: "certain displays are of small size, and thus the visibility of the information may also be optimized by taking into consideration the size, resolution, contrast, brightness of the display, ambient conditions, characteristics of the human visual system, factors specific for a known user, and the available options of the apparatus"

45. Thiesson teaches context accuracy score (Thiesson: col 3, line 10: col 2, line 44: "Should a computing system fail to "comprehend" the name, it can utilize "context" such as what state a piece of mail is from and if the system recognize at least some of the characters in the city name"; "In this context, methods are employed to accurately interpret and exploit what a user inputs over a period of time"), word accuracy score (Thiesson: col 6, line 16: "The present invention includes systems and methods that enable adaptation of a general classification model to a specific user in order to improve classification"), and overall accuracy score (Thiesson: col 1, line 66: "At first, this technology had an accuracy of about 50 to 60%, but today it has progressed to an accuracy of near 98 to 99% or higher").

46. Thiesson teaches the signals to be processed comprise handwriting samples (Thiesson: abstract: “The present invention utilizes generic and user-specific features of handwriting samples to provide adaptive handwriting recognition”)

47. Thiesson provides the motivation for determining the accuracy of a system col 2 – line 5: “OCR technology reached an accuracy level where it seemed practical to attempt to utilize it to recognize handwriting”.

48. As per claim 24, Hoffberg teaches the computer-readable medium of claim 23, wherein:

the signal processing engine to be evaluated comprises recognition software (Hoffberg: col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”), values of the source variable comprise demographic data regarding users creating samples (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), values of the context variable comprise data regarding the context of samples (Hoffberg: col 32, line 45: "context refers to information relating to the environment of use, e.g., the variable"), and values of the physical variable (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension") comprise at least one of data regarding the scaling (Hoffberg: col 47, line 60: “group consisting of a … predetermined

scaling") of a sample, data regarding the relative angle (Hoffberg: col 47, line 60: "group consisting of a predetermined rotation") of components of a sample and data regarding the spacing between components of a sample (Hoffberg: col 107, line 64: "In a preferred embodiment, a model contained in a database includes a three or more dimensional representation of an object. These models include information processed by a fractal-based method to encode repetitive, transformed patterns in a plane, space, time, etc"). Hoffberg does not teach the signals to be processed comprise handwriting samples.

49. Thiesson teaches the signal processing engine to be evaluated comprises handwriting recognition software (Thiesson: col 4, line 46: "The present invention also greatly enhances portable software products"), the signals to be processed comprise handwriting samples (Thiesson: abstract: "The present invention utilizes generic and user-specific features of handwriting samples to provide adaptive handwriting recognition"), values of the physical variable comprise at least one of data regarding the scaling of a handwriting sample (Thiesson: Fig 6. 606-608).

50. Thiesson provides the motivation for performing handwriting recognition on col 1 – line 39: "Unfortunately, not everyone who wanted to utilize a computer knew how to type. This limited the number of computer users who could adequately utilize the computing technology. One solution was to introduce a graphical user interface that allowed a user to select pictures from a computing monitor to make the computer do a

task ... Although, these types of devices made employing computing technology easier, it still did not address mankind's age old method of communicating--handwriting".

51. As per claim 25, Batten teaches at least the summed accuracy scores for signal set, signal set and signal set groups of signals having a common variable value are weighted and summed to yield context accuracy scores (Batten Fig. 12A: element 47), accuracy scores are weighted and summed to yield a combined accuracy score, the combined accuracy score and at least one other summed accuracy score are weighted and summed to yield a accuracy score (Batten Fig. 12A: element 42), and at least the accuracy score and a summed accuracy score for a group corresponding to the variable are weighted and summed to yield an overall accuracy score (Batten Fig. 12A: element 43).

52. Batten does not teach the computer-readable medium of claim 24, wherein: the groups of signal sets comprise: groups of demographic signal sets, each demographic signal set in a group having an associated range of values for the source variable and the same value for the context variable, groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a handwriting sample and the same value for the context variable, and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a handwriting sample and the same value for the context variable.

53. Hoffberg teaches the method of claim 24, wherein:

the groups of signal sets comprise: groups of demographic signal sets (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), each demographic signal set in a group having an associated range of values for the source variable (Hoffberg: col 36, line 57: “ demographic profiles may be employed, rather than individual preferences ... the source material has little variety, or is not the subject of strong preferences, the predictive power of the device as to a desired selection is limited”) and the same value for the context variable (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."; col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"), groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 60: "group consisting of a ... predetermined scaling"), and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context

refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 59: "group consisting of a predetermined rotation"),

54. Hoffberg provides the motivation for using demographic signal sets on col 36 – line 50: “Thus, instead of a best match to a single preference profile for a single user, a group system provides a most acceptable match for the group. It is noted that this method is preferably used in groups of limited size”. Hoffberg provides the motivation for context signal sets on col 28– line 17: “One factor limiting productivity of computer operators is the time necessary to communicate a desired action through an interface to a computerized device. The present technologies seek to reduce this limitation and make use of surplus processing capacity of the computer to predict a most likely input from the operator and present this as an easily available option”. Hoffberg provides the motivation for using scaling and angle signals on col 2 – line 3: “certain displays are of small size, and thus the visibility of the information may also be optimized by taking into consideration the size, resolution, contrast, brightness of the display, ambient conditions, characteristics of the human visual system, factors specific for a known user, and the available options of the apparatus”

55. Thiesson teaches context accuracy score (Thiesson: col 3, line 10: col 2, line 44: "Should a computing system fail to "comprehend" the name, it can utilize "context" such as what state a piece of mail is from and if the system recognize at least some of the

characters in the city name"; "In this context, methods are employed to accurately interpret and exploit what a user inputs over a period of time"), word accuracy score (Thiesson: col 6, line 16: "The present invention includes systems and methods that enable adaptation of a general classification model to a specific user in order to improve classification"), and overall accuracy score (Thiesson: col 1, line 66: "At first, this technology had an accuracy of about 50 to 60%, but today it has progressed to an accuracy of near 98 to 99% or higher").

56. Thiesson teaches the signals to be processed comprise handwriting samples (Thiesson: abstract: “The present invention utilizes generic and user-specific features of handwriting samples to provide adaptive handwriting recognition”)

57. Thiesson provides the motivation for determining the accuracy of a system col 2 – line 5: “OCR technology reached an accuracy level where it seemed practical to attempt to utilize it to recognize handwriting”.

58. Claims 11, 12, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 8 above, and further in view of 7136710 (Hoffberg), USPN 7184591 (Thiesson), and USPN 7167587 (Ii).

59. As per claim 11, Hoffberg teaches the method of claim 8, wherein:
the signal processing engine to be evaluated comprises recognition software (Hoffberg:

col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”), values of the source variable comprise demographic data regarding users creating samples (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), values of the context variable comprise data regarding the context of samples (Hoffberg: col 32, line 45: "context refers to information relating to the environment of use, e.g., the variable"), and values of the physical variable (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension") comprise at least one of data regarding the scaling (Hoffberg: col 47, line 60: “group consisting of a … predetermined scaling”) of a sample, data regarding the relative angle (Hoffberg: col 47, line 60: “group consisting of a predetermined rotation”) of components of a sample and data regarding the spacing between components of a sample (Hoffberg: col 107, line 64: “In a preferred embodiment, a model contained in a database includes a three or more dimensional representation of an object. These models include information processed by a fractal-based method to encode repetitive, transformed patterns in a plane, space, time, etc”). Hoffberg does not teach the signals to be processed comprise handwriting samples.

60. Thiesson does not teach the signal processing engine to be evaluated comprises speech recognition; the signals to be processed comprise speech.

61. Ii teaches the signal processing engine to be evaluated comprises speech recognition software (Ii: abstract: “The present invention recites a method and computer program product”), the signals to be processed comprise speech samples (Ii: col 2, line 51: " The classification method may be applied to any pattern recognition task, including, for example, OCR (optical character recognition), speech translation, and image analysis in medical, military, and industrial applications”).

62. For applying this pattern recognition technique to speech samples, one skilled in the art at the time of the invention would use the rationale that speech translation would allow communication for people who do not share a common language.

63. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Ii into Batten since Batten suggests pattern recognition via neural networks in general and Ii suggests the beneficial use of neural networks for speech recognition in the analogous art of pattern recognition.

64. As per claim 12, Batten teaches at least the summed accuracy scores for signal set, signal set and signal set groups of signals having a common variable value are weighted and summed to yield context accuracy scores (Batten Fig. 12A: element 47), accuracy scores are weighted and summed to yield a combined accuracy score, the combined accuracy score and at least one other summed accuracy score are weighted and summed to yield a accuracy score (Batten Fig. 12A: element 42), and

at least the accuracy score and a summed accuracy score for a group corresponding to the variable are weighted and summed to yield an overall accuracy score (Batten Fig. 12A: element 43).

65. Batten does not teach the method of claim 11, wherein: the groups of signal sets comprise: groups of demographic signal sets, each demographic signal set in a group having an associated range of values for the source variable and the same value for the context variable, groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a handwriting sample and the same value for the context variable, and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a handwriting sample and the same value for the context variable.

66. Hoffberg teaches the method of claim 11, wherein:
the groups of signal sets comprise: groups of demographic signal sets (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), each demographic signal set in a group having an associated range of values for the source variable (Hoffberg: col 36, line 57: “ demographic profiles may be employed, rather than individual preferences ... the source material has little variety, or is not the subject of strong preferences, the predictive power of the device as to a desired selection is limited”) and the same value for the context variable (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary

information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."; col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"), groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 60: "group consisting of a ... predetermined scaling"), and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 59: "group consisting of a predetermined rotation"),

67. Hoffberg provides the motivation for using demographic signal sets on col 36 – line 50: “Thus, instead of a best match to a single preference profile for a single user, a group system provides a most acceptable match for the group. It is noted that this method is preferably used in groups of limited size”. Hoffberg provides the motivation for context signal sets on col 28– line 17: “One factor limiting productivity of computer operators is the time necessary to communicate a desired action through an interface to

a computerized device. The present technologies seek to reduce this limitation and make use of surplus processing capacity of the computer to predict a most likely input from the operator and present this as an easily available option". Hoffberg provides the motivation for using scaling and angle signals on col 2 – line 3: "certain displays are of small size, and thus the visibility of the information may also be optimized by taking into consideration the size, resolution, contrast, brightness of the display, ambient conditions, characteristics of the human visual system, factors specific for a known user, and the available options of the apparatus"

68. Thiesson teaches context accuracy score (Thiesson: col 3, line 10: col 2, line 44: "Should a computing system fail to "comprehend" the name, it can utilize "context" such as what state a piece of mail is from and if the system recognize at least some of the characters in the city name"; "In this context, methods are employed to accurately interpret and exploit what a user inputs over a period of time"), word accuracy score (Thiesson: col 6, line 16: "The present invention includes systems and methods that enable adaptation of a general classification model to a specific user in order to improve classification"), and overall accuracy score (Thiesson: col 1, line 66: "At first, this technology had an accuracy of about 50 to 60%, but today it has progressed to an accuracy of near 98 to 99% or higher").

69. Thiesson provides the motivation for determining the accuracy of a system col 2 – line 5: “OCR technology reached an accuracy level where it seemed practical to attempt to utilize it to recognize handwriting”.

70. Thiesson does not teach the signal processing engine to be evaluated comprises speech recognition; the signals to be processed comprise speech.

71. Ii teaches the signal processing engine to be evaluated comprises speech recognition software (Ii: abstract: “The present invention recites a method and computer program product”), the signals to be processed comprise speech samples (Ii: col 2, line 51: " The classification method may be applied to any pattern recognition task, including, for example, OCR (optical character recognition), speech translation, and image analysis in medical, military, and industrial applications”).

72. As per claim 26, Hoffberg teaches the computer-readable medium of claim 23, wherein:

the signal processing engine to be evaluated comprises recognition software (Hoffberg: col 1, line 22: “The present invention relates to the field of programmable man-machine interfaces”), values of the source variable comprise demographic data regarding users creating samples (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), values of the context variable comprise data regarding the context of samples (Hoffberg: col 32,

line 45: "context refers to information relating to the environment of use, e.g., the variable"), and values of the physical variable (Hoffberg: col 37, line 37: "Faces, on the other hand, have common and variable elements. Therefore, a facial model may be based on parameters having distinguishing power, such as width between eyes, mouth, shape of ears, and other proportions and dimension") comprise at least one of data regarding the scaling (Hoffberg: col 47, line 60: “group consisting of a … predetermined scaling”) of a sample, data regarding the relative angle (Hoffberg: col 47, line 60: “group consisting of a predetermined rotation”) of components of a sample and data regarding the spacing between components of a sample (Hoffberg: col 107, line 64: “In a preferred embodiment, a model contained in a database includes a three or more dimensional representation of an object. These models include information processed by a fractal-based method to encode repetitive, transformed patterns in a plane, space, time, etc”). Hoffberg does not teach the signals to be processed comprise handwriting samples.

73. Thiesson does not teach the signal processing engine to be evaluated comprises speech recognition; the signals to be processed comprise speech.

74. Ii teaches the signal processing engine to be evaluated comprises speech recognition software (Ii: abstract: “The present invention recites a method and computer program product”), the signals to be processed comprise speech samples (Ii: col 2, line 51: " The classification method may be applied to any pattern recognition task,

including, for example, OCR (optical character recognition), speech translation, and image analysis in medical, military, and industrial applications").

75. As per claim 27, Batten teaches at least the summed accuracy scores for signal set, signal set and signal set groups of signals having a common variable value are weighted and summed to yield context accuracy scores (Batten Fig. 12A: element 47), accuracy scores are weighted and summed to yield a combined accuracy score, the combined accuracy score and at least one other summed accuracy score are weighted and summed to yield a accuracy score (Batten Fig. 12A: element 42), and
at least the accuracy score and a summed accuracy score for a group corresponding to the variable are weighted and summed to yield an overall accuracy score (Batten Fig. 12A: element 43).

76. Batten does not teach the computer-readable medium of claim 26, wherein: the groups of signal sets comprise: groups of demographic signal sets, each demographic signal set in a group having an associated range of values for the source variable and the same value for the context variable, groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a handwriting sample and the same value for the context variable, and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a handwriting sample and the same value for the context variable.

77. Hoffberg teaches the computer-readable medium of claim 26, wherein:

the groups of signal sets comprise: groups of demographic signal sets (Hoffberg: col 36, line 56: “Where large groups are present, demographic profiles may be employed, rather than individual preferences”), each demographic signal set in a group having an associated range of values for the source variable (Hoffberg: col 36, line 57: “ demographic profiles may be employed, rather than individual preferences ... the source material has little variety, or is not the subject of strong preferences, the predictive power of the device as to a desired selection is limited”) and the same value for the context variable (Hoffberg: col 82, line 14: "Thus, the interface, in obtaining necessary information, employs such available data source access methods as speech recognition, character recognition, digital telecommunication means, radio wave reception and interpretation, and links to other devices."; col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"), groups of scaling signal sets, each scaling signal set in a group having an associated range of values for the scaling of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 60: "group consisting of a ... predetermined scaling"), and groups of angle signal sets, each angle signal set in a group having an associated range of values for at least one angle of a component of a sample and the same value for the context variable (Hoffberg: col 32, line 45" "context

refers to information relating to the environment of use, e.g., the variable inputs or data upon which the apparatus acts or responds"; col 47, line 59: "group consisting of a predetermined rotation"),

78. Hoffberg provides the motivation for using demographic signal sets on col 36 – line 50: “Thus, instead of a best match to a single preference profile for a single user, a group system provides a most acceptable match for the group. It is noted that this method is preferably used in groups of limited size”. Hoffberg provides the motivation for context signal sets on col 28– line 17: “One factor limiting productivity of computer operators is the time necessary to communicate a desired action through an interface to a computerized device. The present technologies seek to reduce this limitation and make use of surplus processing capacity of the computer to predict a most likely input from the operator and present this as an easily available option”. Hoffberg provides the motivation for using scaling and angle signals on col 2 – line 3: “certain displays are of small size, and thus the visibility of the information may also be optimized by taking into consideration the size, resolution, contrast, brightness of the display, ambient conditions, characteristics of the human visual system, factors specific for a known user, and the available options of the apparatus”

79. Thiesson teaches context accuracy score (Thiesson: col 3, line 10: col 2, line 44: "Should a computing system fail to "comprehend" the name, it can utilize "context" such as what state a piece of mail is from and if the system recognize at least some of the

characters in the city name"; "In this context, methods are employed to accurately interpret and exploit what a user inputs over a period of time"), word accuracy score (Thiesson: col 6, line 16: "The present invention includes systems and methods that enable adaptation of a general classification model to a specific user in order to improve classification"), and overall accuracy score (Thiesson: col 1, line 66: "At first, this technology had an accuracy of about 50 to 60%, but today it has progressed to an accuracy of near 98 to 99% or higher").

80. Thiesson provides the motivation for determining the accuracy of a system col 2 – line 5: “OCR technology reached an accuracy level where it seemed practical to attempt to utilize it to recognize handwriting”.

81. Thiesson does not teach the signal processing engine to be evaluated comprises speech recognition; the signals to be processed comprise speech.

82. Ii teaches the signal processing engine to be evaluated comprises speech recognition software (Ii: abstract: “The present invention recites a method and computer program product”), the signals to be processed comprise speech samples (Ii: col 2, line 51: " The classification method may be applied to any pattern recognition task, including, for example, OCR (optical character recognition), speech translation, and image analysis in medical, military, and industrial applications”).

83. Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 13 above, and further in view of USPN 5142666 (Yoshizawa).

84. As per claim 14, Batten teaches the method of claim 13. Batten does not teach wherein the transform function comprises:
outputting the sum if the sum is above a threshold, and outputting number having a large absolute value if the sum is not above the threshold.

85. Yoshizawa teaches wherein the transform function comprises:
outputting the sum if the sum is above a threshold, and outputting number having a large absolute value if the sum is not above the threshold (Yoshizawa: Fig. 1A: 4).

86. Yoshizawa provides the motivation for using the nonlinear thresholding function on col 1 - line 34: “applying a nonlinear threshold value process to the added values”.

87. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Yoshizawa into Batten since Batten suggests a nonlinear function transforming function for the output of a neural network in general and Yoshizawa suggests the beneficial use of a thresholding nonlinear transforming function in the analogous art of neural networks.

88. As per claim 29, Batten teaches the computer-readable medium of claim 28. Batten does not teach wherein the transform function comprises:
outputting the sum if the sum is above a threshold, and outputting number having a large absolute value if the sum is not above the threshold.

89. Yoshizawa teaches wherein the transform function comprises:
outputting the sum if the sum is above a threshold, and outputting number having a large absolute value if the sum is not above the threshold (Yoshizawa: Fig. 1A: 4).

90. Claims 15 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5768478 (Batten) as applied to claim 1 above, and further in view of USPGPubN 20050049983 (Butler).

91. As per claim 15, Batten teaches the method of claim 1, further comprising:
setting accuracy scores for signal sets to equal 1 (Batten: Fig. 12A: element 26).
Batten does not teach applying confidence scores to weight factors; and calculating an overall confidence score.

92. Butler teaches applying confidence scores to weight factors (Butler: Fig. 5: 525); and calculating an overall confidence score (Butler: Fig. 5: 530).

93. Butler provides the motivation for calculating confidence scores on page 2 - paragraph 29: “A neural network acquires knowledge through iterative training that involves adjustments applied to its weights and thresholds. More specifically, the training process comprises an adaptation of the interconnection and values of weights to achieve a desired mapping of known inputs to known outputs. Various techniques may be used for training neural networks to determine the optimal set of weights for the neural network for a given classification problem. Once an acceptable set of weights is derived, the neural network can then be used as an algorithm for classifying unknown input data”.

94. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Butler into Batten since Batten suggests a neural network with variable weights in general and Butler suggests the beneficial use of confidence scores to assess the selection of weights in the analogous art of neural networks.

95. As per claim 30, Batten teaches the computer-readable medium of claim 16, further comprising:

setting accuracy scores for signal sets to equal 1 (Batten: Fig. 12A: element 26).

Batten does not teach applying confidence scores to weight factors; and calculating an overall confidence score.

96. Butler teaches applying confidence scores to weight factors (Butler: Fig. 5: 525); and calculating an overall confidence score (Butler: Fig. 5: 530).

Conclusion

97. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Atiba Fitzpatrick whose telephone number is (571) 270-5255. The examiner can normally be reached on M-F 7:30am-5pm (alternate Fridays off).

98. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on (571) 272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

99. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Atiba Fitzpatrick

Patent Examiner

/Pankaj Kumar/
Supervisory Patent Examiner, Art Unit 4192